

REMARKS

This amendment is responsive to the Office Action dated June 5, 2002 (the Office Action). With entry of this amendment, claims 1- 35 are pending. Claims 1, 2, 8-12, and 14 have been amended and claims 18 - 35 have been newly added. No new matter has been entered. Reconsideration of the pending claims is requested in light of this amendment and the following remarks.

Information Disclosure Statement

In paragraph 1 of the Office Action, the Examiner discussed US patent 5,598,898 to Mutoh et al, and reminded the Applicant that patents discussed in the application but not cited on a PTO-1449 in an Information Disclosure Statement will not be considered by the Examiner.

The patent reference cited on page 2, line 9 of the original specification (Mutoh) was a typographical error (transposed digits), which has been corrected by this amendment. The proper reference should be US 5,589,898 to Atkinson, which was properly filed by the Applicant on a PTO-1449, and considered by the Examiner. The Applicant thanks the Examiner for bringing this error to the attention of the Applicant, and apologizes for any confusion created. There was no intent to mislead the Examiner.

Drawings

The Examiner noted that the drawings are currently informal. The Applicant acknowledges this and will file formal drawings when the application is allowed.

Allowable Subject Matter

The Applicant thanks the Examiner for stating that claims 12 and 14-17 contain patentable subject matter, and that claims 12 and 14 would be allowable if written in independent form. In particular, the Examiner recognized the following novel features including: partitioning the screen into a plurality of sections, wherein the adjusted reference image is displayed in only one of the sections; selecting a set of coordinates for defining a color space; selecting a type of color blindness; characterizing the selected type of color blindness with respect to the coordinates of at least one discernible region in the color space; selecting a color gamut adjustment that maps at least one region outside the discernible region into the discernible region; generating the original values and the adjusted values that

perform the color gamut adjustment; and storing the original values and the adjusted values in a look up table in memory.

Therefore, the Applicant has amended the claims 12 and 14 to be independent claims, including features that the Examiner indicated were allowable, as suggested by the Examiner.

Previous Rejection

Previous claims 1-9, 11, and 13 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,677,741 issued to Yui (hereinafter "Yui"). However, with entry of this amendment, the independent claims 1 and 8, as well as the new independent claims 18 and 25 contain subject matter not disclosed nor suggested by Yui, nor elsewhere in the prior art. Therefore, because Yui does not anticipate nor suggest the subject matter of the claims as currently pending, it is believed that the previous rejection based on Yui is now moot.

Subject matter of the pending claims

It is believed that all of the independent claims currently contain subject matter that is not anticipated nor suggested by Yui, nor elsewhere in the prior art, and that these claims are in condition for allowance.

For instance, amended claim 1 includes "display circuitry structured to cause the screen to display the original color signal and the adjusted color signal simultaneously". Similarly, newly added claim 18 includes "a partitioner structured to partition a display into a first and a second section" and "a display generator structured to cause the original video signal to be shown in the first section and the compensated video signal displayed in the second section". These claimed features are similar to features that the Examiner already indicated were patentable. Specifically, in paragraph 7 of the Office Action, the Examiner states ... [claim 12] "recites a novel feature of partitioning the screen into a plurality of sections, and wherein the adjust reference image is displayed in only one of the sections." Additionally, amended method claim 8 recites "applying the video signal and the adjusted signal to the screen", and new method claim 25 recites "simultaneously displaying both the original video signal and the transformed video signal on a display". These features described above are not shown in Yui nor elsewhere in the prior art. Therefore, these features of independent claims 1, 8, 18, and 25, and in addition to the remainder of the respective claims, are not found in the prior art and thus are patentable.

Further, claims that depend either directly or indirectly from these independent claims recite additional points of novelty of the invention. For instance, claim 2 recites that the processor "is structured to generate two adjusted color signals for compensating for the first and a second type of color blindness". Claim 33 is directed to a user generating a signal prior to displaying the video signal and the transformed video signal. Therefore, it is believed that the dependent claims are allowable based on their dependency from the independent claims, and based on the language of the claims themselves.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-35 of the application is respectfully requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

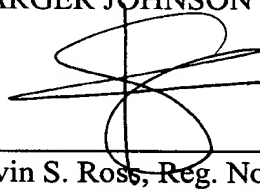
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. on:

Sept. 5, 2002

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Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A real time video system for outputting to a screen signals for displaying color images that are adjusted for color blindness from original color images encoded in a real time video signal, the video system comprising:

a decoder for decoding the video signal into at least one original color signal associated with a color of the original image; [and]

a processor coupled with the decoder for receiving the original color signal, and for [outputting to the screen at least a first color signal] generating an adjusted color signal from the original color signal for compensating for a first type of color blindness[.]; and

display circuitry structured to cause the screen to display the original color signal and the adjusted color signal simultaneously.

2. (Amended) The system of claim 1, wherein the processor [outputs a second color signal adjusted from the original color signal] is structured to generate two adjusted color signals for compensating for [a] the first and a second type of color blindness, and further comprising means for selecting to output one of the first and the second adjusted color signals.

3. The system of claim 1, wherein the original color signal is associated with a series of ordered sets of original samples, and wherein the adjusted color signal is associated with a series of ordered sets of samples adjusted from the original samples according to a first color gamut adjustment predefined for the first type of color blindness.

4. The system of claim 3, wherein the original samples represent original values, each original value associated with a content of a respective one of a plurality of predefined primary colors, the adjusted samples represent adjusted values, each adjusted value associated with a content of a respective one of the primary colors, and wherein the system further comprises a memory coupled with the processor and having stored therein the sets of original values and the first set of adjusted values.

5. The system of claim 4, further comprising means for combining the original samples of a single ordered set thereby generating a single sample for inputting into the memory as an address.

6. The system of claim 4, wherein the memory reads out a single sample for each input ordered set of original samples, and further comprising means for extracting from the sample output by the memory an ordered set of adjusted samples.

7. The system of claim 1, further comprising a screen coupled with the processor for receiving the adjusted color signal, the screen thereby displaying in real time color images adjusted from the original images for compensating for the first type of color blindness.

8. (Amended) A method for adjusting real time color images encoded in a video signal suitable for producing a display on a screen comprising:

decoding the video signal into at least one original color signal associated with a color of the original image;

generating an adjusted signal from the original color signal according to a first transform associated with a first type of color blindness; and

applying the video signal and the adjusted signal to the screen[, the screen thereby displaying color images adjusted for the first type of color blindness.];

allowing a user to select either the video signal or the adjusted signal; and

thereafter applying only the selected signal to the screen.

9. (Amended) The method of claim 8, further comprising:

using a reference color image to generate at least one reference color signal associated with a color of the reference image; and

generating [an] the adjusted signal from the reference color signal according to a tested transform associated with a tested type of color blindness[;

applying the adjusted signal to the screen, the screen thereby displaying a reference image adjusted for the tested type of color blindness;

accepting an input from a viewer as to whether the adjusted reference image is desirable; and

if the adjusted reference image is desirable, using the tested transform as the first transform].

10. (Amended) The method of claim [9] 8 wherein accepting is by using a remote control unit.

11. (Amended) The method of claim 9, further comprising generating [an] a second adjusted signal from the reference signal according to a second tested transform associated with a second tested type of color blindness.

12. (Amended) [The method of claim 9, further comprising] A method for adjusting real time color images encoded in a video signal suitable for producing a display on a screen comprising:

decoding the video signal into at least one original color signal associated with a color of the original image;

using a reference color image to generate at least one reference color signal associated with a color of the reference image;

generating an adjusted signal from the reference color signal according to a tested transform associated with a tested type of color blindness;

applying the adjusted signal to the screen, the screen thereby displaying color images adjusted for the first type of color blindness;

partitioning the screen into a plurality of sections, [and] wherein the adjusted reference image is displayed in only one of the sections[.];

accepting an input from a viewer as to whether the adjusted reference image is desirable; and

if the adjusted reference image is desirable, using the tested transform as the first transform.

13. The method of claim 8, further comprising digitizing the original color signal to produce at least one original value, and wherein generating is performed by looking up in a memory an adjusted value corresponding to the original value.

14. (Amended) [The method of claim 13, further comprising:] A method for adjusting real time color images encoded in a video signal suitable for producing a display on a screen comprising:

decoding the video signal into at least one original color signal associated with a color of the original image;

digitizing the original color signal to produce at least one original value;

generating an adjusted signal from the original color signal according to a first transform associated with a first type of color blindness by looking up in a memory an adjusted value corresponding to the original value;

applying the adjusted signal to the screen, the screen thereby displaying color images adjusted for the first type of color blindness;

selecting a set of coordinates for defining a color space;

selecting a type of color blindness;

characterizing the selected type of color blindness with respect to the coordinates as at least one discernible region in the color space;

selecting a color gamut adjustment that maps at least one region outside the discernible region into the discernible region;

generating the original values and the adjusted values that perform the color gamut adjustment; and

storing the original values and the adjusted values in a look up table in the memory.

15. The method of claim 14, wherein the memory is an EPROM, and wherein storing is performed by burning in the EPROM.

16. The method of claim 14, wherein selecting includes contracting a portion of the discernible region.

17. The method of claim 14, wherein selecting includes rotating at least a portion of one of the regions.

18. (New) A device for generating compensated video signals, comprising:

an input for accepting an original video signal;

a video transformer for creating a video signal compensated for a type of color blindness from the original video signal;

a partitioner structured to partition a display into a first and a second section; and

a display generator structured to cause the original video signal to be shown in the first section and the compensated video signal displayed in the second section.

19. (New) The device of claim 18, further comprising:
a second input structured to accept a signal indicating that either the original video signal or the compensated video signal is preferred; and
a second display generator structured to cause only the preferred signal to be shown on the display.
20. (New) The device of claim 18 wherein the video transformer is structured to generate more than one video signal, each video signal compensated for different degrees of the same type of color blindness or for different types of color blindness.
21. (New) The device of claim 20 wherein the display generator is structured to cause all of the compensated video signals to be shown simultaneously, each in a different section of the display.
22. (New) The device of claim 18 wherein the video transformer is structured to create the compensated video signal based on a pre-defined color map.
23. (New) The device of claim 22 wherein the video transformer comprises a memory lookup color table.
24. (New) The device of claim 22 wherein the video transformer comprises a memory color transform calculator.
25. (New) method for displaying a color compensated image, comprising:
accepting an original video signal;
transforming the original video signal into a video signal compensated for a type of color blindness;
simultaneously displaying both the original video signal and the transformed video signal on a display;
accepting a selection of a preferred video signal; and
displaying only the selected video signal on the display.
26. (New) The method of claim 25, further comprising storing the selection.

27. (New) The method of claim 25 wherein accepting a selection of a preferred video comprises accepting a signal created by a remote control.
28. (New) The method of claim 25, further comprising generating a plurality of video signals compensated for different degrees of color blindness, and simultaneously displaying the plurality of video signals on the display.
29. (New) The method of claim 25, further comprising generating a plurality of video signals compensated for different types of color blindness, and simultaneously displaying the plurality of video signals on the display.
30. (New) The method of claim 25 wherein simultaneously displaying both the original video signal and the transformed video signal occurs after a signal is received.
31. (New) The method of claim 30 wherein the signal is automatically periodically generated.
32. (New) The method of claim 31 wherein the signal is automatically generated at one year intervals.
33. (New) The method of claim 30 wherein a user causes the signal to be generated.
34. (New) The method of claim 25 wherein transforming the original video signal into a video signal compensated for a type of color blindness comprises using a color table lookup stored in a memory device.
35. (New) The method of claim 25 wherein transforming the original video signal into a video signal compensated for a type of color blindness comprises performing calculations based on the original video signal.